CLAIMS

1. An electrostatic relay in which a movable electrode of a movable substrate resiliently supported so as to be opposed to a fixed electrode formed on a stationary substrate is driven based on electrostatic attraction caused between the fixed electrode and the movable electrode, and a plurality of fixed contacts provided on the stationary substrate and a movable contact provided on the movable substrate are brought into contact with each other and separated from each other,

wherein a sealing portion formed on a third substrate is provided that constitutes a portion that crosses a line connecting the fixed contacts and the movable contact outside a gap between the fixed contacts and the movable contact, and seals at least the fixed contacts and the movable contact by bonding them to the stationary substrate or to the movable substrate,

and a through portion in which at least one of the signal lines connecting to the fixed contacts is passed through the stationary substrate from an obverse surface to a reverse surface thereof and is disposed in a position not deteriorating

a sealing condition of the sealing portion.

2. An electrostatic relay according to Claim 1, wherein at least one of the signal lines connecting to the fixed contacts is passed through the stationary substrate from the obverse surface to the reverse surface thereof, and an opening, on a movable substrate bonded side, of a through hole through which the signal line is passed is hermetically sealed by bonding it to the movable substrate or to the third substrate through a metal layer formed around the opening.

3. An electrostatic relay according to Claim 2, wherein at least one of the signal lines passed through the stationary substrate from the obverse surface to the reverse surface thereof is formed vertically to the stationary substrate.

4. An electrostatic relay according to Claim 2, wherein at least one of the wiring conductors provided on the stationary substrate, except for the signal lines connecting to the fixed electrodes being passed through the stationary substrate from the obverse surface to the reverse surface thereof, and an

opening on the movable substrate bonded side of a through hole through which the wiring conductor is passed, is hermetically sealed by bonding it to the movable substrate or to the third substrate through a metal layer formed around the opening.

5. An electrostatic relay according to Claim 2 or 4, wherein at least one ground line for high frequency is formed between at least one pair of signal lines or wiring conductors of the signal lines or the wiring conductors formed on the stationary substrate.

6. An electrostatic relay according to Claim 2 or 4, wherein at least one of the signal lines or the wiring conductors is formed in the through hole formed in the stationary substrate, and at least one of the signal line or the wiring conductor is formed only on part of the through hole.

7. An electrostatic relay according to Claim 2 or 4, wherein at least one of bumps is provided at an end situated on a substrate's reverse surface side of at least one of the signal lines or the wiring conductors formed on the stationary

substrate.

8. An electrostatic relay according to Claim 2, wherein the opening is disposed outside an area on the stationary substrate opposed to the movable electrode or the movable contact.

9. An electrostatic relay according to Claim 2, wherein the third substrate is bonded to the stationary substrate by a convex portion formed on a side bonded to the stationary substrate.

10. An electrostatic relay according to Claim 9, wherein at least one of the openings is disposed in a position opposed to the convex portion of the third substrate.

11. An electrostatic relay according to Claim 1, wherein the through portion is disposed in a peripheral part of the stationary substrate.

12. An electrostatic relay according to Claim 11,

wherein the through portion is a concave shape having an opening on a periphery of the stationary substrate.

13. An electrostatic relay according to Claim 11, wherein the through portion is formed vertically to a plane of the stationary substrate.

14. An electrostatic relay according to Claim 11, wherein the third substrate is bonded to the stationary substrate, and the through portion is provided on the stationary substrate in a neighborhood outside an area of bonding of the stationary substrate and the third substrate.

15. An electrostatic relay according to Claim 11, wherein at least one of the wiring conductors formed on the stationary substrate is connected to the through portion.

16. An electrostatic relay according to Claim 11, wherein an electrode film is provided on the reverse surface of the stationary substrate, and the electrode film is divided into a plurality of areas isolated from each other, by a slit

formed on the reverse surface of the stationary substrate.

17. An electrostatic relay according to Claim 11, wherein at least one of bumps electrically continuous with at least one of the signal lines or the wiring conductors formed on the stationary substrate is provided on the reverse surface of the stationary substrate.

18. An electrostatic relay according to Claim 1, wherein the stationary substrate and the movable substrate are made of single-crystal silicon.

19. A communications apparatus having a switching element that switches transmission/reception signals of an antenna or an internal circuit, wherein the electrostatic relay according to Claim 1 is used as the switching element.